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Shervin Moloudi

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MCANDREWS HELD & MALLOY, LTD
500 WEST MADISON STREET
SUITE 3400
CHICAGO, IL 60661

EXAMINER

DAGLAWI, AMAR A

ART UNIT

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2618

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/813,486	Applicant(s) MOLOUDI, SHERVIN	
	Examiner AMAR DAGLAWI	Art Unit 2618	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 24 July 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-40 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-40 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

Claims 1-40 are pending in the application. Claims 1, 21, and 32 are independent. Claims 2-20, 22-31 and 32-40 depend directly or indirectly from independent claims 1, 21, and 32.

Response to Argument

Applicant's arguments see pages 12-19, filed 07/24/2009, with respect to claims 1-40 have been fully considered and are persuasive. The Non-Final action mailed 04/24/2009 has been withdrawn and new grounds of rejection has been presented.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

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3. 4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

4. Claims 1-10, 14-21, 24-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admission of prior art in view of Nakatani et al (US 4,999,596).

5.

6. With respect to claim 1, the recitation "A method for reducing phase noise" has not been given patentable weight because it has not been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

7. applicant's admitted prior art teaches generating in a transmitter, a local oscillator (LO) a signal at a particular frequency the LO signal being associated with a LO harmonic frequency signal disposed at a LO harmonic frequency (Fig.1, Fig.2, par [0004-0013]);

8. selecting in transmitter frequency content disposed in a region around the LO harmonic frequency and (Fig.1, Fig.2, par [0004-0013])

9. However, applicant's admission of prior art fails to teach attenuating in said transmitter said selected frequency content disposed in said region around the LO harmonic frequency which is taught in related art by Nakatani (See col.6, lines 28-35, abstract)

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10. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit as taught by Nakatani so as to attenuate the second harmonic of the local oscillator.

11. With respect to claim 2, applicant's admitted prior art in view of Nakatani further teaches associating the signal with a second LO harmonic frequency signal disposed at a second harmonic frequency and selectively attenuating frequency content disposed in a second region around the LO second harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

12. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

13.

14. With respect to claim 3, applicant's admitted prior art in view of Nakatani further teaches applying at least one non-linear operation to the LO signal and transmitting the applied signal (applicant's admission of prior art, Fig.1, par [0004-0005])

15. With respect to claim 4, applicant's admitted prior art in view of Nakatani further teaches applying at least one non-linear operation to the LO signal comprises dividing the LO signal (applicant's admission of prior art, par [0005], Fig.1)

16. With respect to claim 5, applicant's admitted prior art in view of Nakatani further teaches applying at least one non-linear operation to the LO signal comprises mixing

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the LO signal with a reference signal (applicant's admission of prior art, Fig.1, par [0006])

17. With respect to claim 6, applicant's admitted prior art in view of Nakatani further teaches applying at least one non-linear operation to the LO signal comprises amplifying the LO signal (applicant's admission of prior art, Fig.1, par [0004-0005])

18. With respect to claim 7, applicant's admitted prior art in view of Nakatani further teaches the LO signal is generated by at least one of a fixed frequency oscillator, a voltage controlled oscillator, and a current controlled oscillator (applicant's admission of prior art, par [0004-0005])

19. With respect to claim 8, applicant's admitted prior art in view of Nakatani further teaches the frequency content is selectively attenuated by at least one attenuating circuit (Nakatani, col.6, lines 28-35, abstract).

20. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

21.

22. With respect to claim 9, applicant's admitted prior art in view of Nakatani further teaches the at least one attenuating circuit comprises at least one of an integrated component and a discrete component (Nakatani, col.6, lines 28-35, abstract, Fig.6 (a)).

23. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by

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applicant's admission of prior art with the filter circuit (composed of discrete components) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

24.

25. With respect to claim 10, applicant's admitted prior art in view of Nakatani further teaches the at least one attenuating circuit comprises at least one harmonic trap (Nakatani, col.6, and lines 28-35, abstract, Fig.6 (a)).

26. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (harmonic trap) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

27.

28. With respect to claim 14, applicant's admitted prior art in view of Nakatani further teaches the LO signal comprises a differential signal (applicant's admission of prior art, Fig.1, Fig.2, par [0004-0013]).

29. With respect to claim 15, applicant's admitted prior art in view of Nakatani further teaches the LO signal comprises a quadrature (applicant's admission of prior art, Fig.1, Fig.2, par [0004-0013]).

30. With respect to claim 16, applicant's admitted prior art in view of Nakatani further teaches the selective attenuating comprises cancelling frequency content disposed in the region around the LO harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

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31. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (harmonic trap) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

32. With respect to claim 17, applicant's admitted prior art in view of Nakatani further teaches the cancelling frequency content disposed in the region around the LO harmonic frequency comprises cancelling frequency content disposed only at the LO harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

33. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (harmonic trap) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator

With respect to claim 18, applicant's admitted prior art in view of Nakatani further teaches the selective attenuating comprises notching frequency content disposed in the region around the LO harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

34. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (harmonic trap) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

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35. With respect to claim 19, applicant's admitted prior art in view of Nakatani further teaches the notching frequency content comprises notching frequency content disposed only at the LO harmonic frequency (Nakatani, col.6, lines 28-35, abstract).

36. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (harmonic trap) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

37.

38. With respect to claim 20, applicant's admitted prior art in view of Nakatani further teaches the selective attenuating comprises bandstopping frequency content disposed in the region around the LO harmonic frequency (col.6, lines 28-35, abstract).

39. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (harmonic trap) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

40.

With respect to claim 21, applicant's admission of prior art teaches a signal generator in a transmitter, said signal generator generates a LO signal at a particular frequency, the LO signal being associated with a LO harmonic frequency signal disposed at a LO harmonic frequency (Fig.1, Fig.2, par [0004-0013]); and

41. However, applicant's admission of prior art fails to teach an attenuating circuit in said transmitter, that said attenuating circuit selects frequency content disposed in a

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region around the LO harmonic frequency and attenuates said selected frequency content disposed in said region around the LO harmonic frequency which is taught in related art by Nakatani (See col.6, lines 28-35, abstract)

42. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit as taught by Nakatani so as to attenuate the second harmonic of the local oscillator.

43.

With respect to claim 24, applicant's admitted prior art in view of Nakatani further teaches a non linear operation circuit that applies at least one non-linear operation to the signal to obtain an outgoing signal and a transmitting circuit for transmitting the outgoing signal (applicant's admission of prior art, Fig.1, par [0004-0005])).

With respect to claim 25, applicant's admitted prior art in view of Nakatani further teaches the transmitting circuit comprises an antenna (applicant's admission of prior art, Fig.1).

44. With respect to claim 26, applicant's admitted prior art in view of Nakatani further teaches non-linear operation circuit comprises a divider that divides the signal (Fig.1, par [0004-0005])).

45. With respect to claim 27, applicant's admitted prior art in view of Nakatani further teaches the non-linear operation circuit comprises a mixer that mixes the signal with a reference signal (Fig.1, par [0004-0005])).

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46. With respect to claim 28, applicant's admitted prior art in view of Nakatani further teaches the non-linear operation circuit comprises an amplifier that amplifies the signal (applicant's admission of prior art, Fig.1, par [0004-0005])).

47. With respect to claim 29, applicant's admitted prior art in view of Nakatani further teaches the signal generator comprises at least one of a fixed frequency oscillator, a voltage controlled oscillator and a current controlled oscillator (Fig.1, par [0004-0005])).

48. With respect to claim 30, applicant's admitted prior art in view of Nakatani further teaches the attenuating circuit comprises at least one of an integrated component and a discrete component (Nakatani, col.6, lines 28-35, abstract, Fig.6 (a)).

49. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (composed of discrete components) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

50.

51. With respect to claim 31, applicant's admitted prior art in view of Nakatani further teaches the attenuating circuit comprises at least one harmonic trap (Nakatani, col.6, lines 28-35, abstract).

52. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the teachings of the conventional transmitter taught by applicant's admission of prior art with the filter circuit (harmonic trap) of Nakatani so as to attenuate the second harmonic frequency wave of the local oscillator.

53. Claims 11, 12, 13, 22-23, 32-40 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicant's admitted prior art and Nakatani in view of Cairns (US 5,794,131).

54. With respect to claims 11, 12, 13, 22-23 applicant's admitted prior art and Nakatani teaches all the limitations of claim 1 except for buffering the signal prior to selectively attenuating the frequency content and wherein the buffering is performed by a buffer and wherein the selective attenuating of the frequency content is performed within the buffer which is taught in related art by Cairns (See col.4, lines 1-36, Fig.3).

55. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of applicant's admitted prior art and Nakatani with the buffer of Cairns so as to provide sufficient attenuation to the third harmonics at the transmitter.

56. With respect to claim 32, applicant's admitted prior teaches the recitation "A system for reducing phase noise" has not been given patentable weight because it has not been held that a preamble is denied the effect of a limitation where the claim is drawn to a structure and the portion of the claim following the preamble is a self-contained description of the structure not depending for completeness upon the introductory clause. *Kropa v. Robie*, 88 USPQ 478 (CCPA 1951).

Applicant's admitted prior art teaches a signal generator in a transmitter, said signal generator generates a signal at a particular frequency, the LO signal being

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associated with a LO harmonic frequency signal disposed at a LO harmonic frequency (Fig.1, Fig.2, par [0004-0013]).

57. However, applicant's admitted prior art fails to teach a buffer that buffers the signal, the buffer adapted to selected LO frequency content disposed in a region around the LO harmonic frequency which is taught in related art by Cairns (See col.4, lines 1-36, Fig.3).

58. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the transmitter of applicant's admitted prior art with the buffer of Cairns so as to provide sufficient attenuation to the third harmonics at the transmitter.

59. With respect to claim 33, applicant's admitted prior art and Nakatani in view of Cairns further teaches the signal is a differential signal (Cairns, col.4, lines 9-25).

60. With respect to claim 34, applicant's admitted prior art and Nakatani in view of Cairns further teaches the signal is a quadrature (Cairns, col.4, lines 9-25)).

61. With respect to claim 35, applicant's admitted prior art in view of Nakatani in view of Cairns further teaches the signal generator comprises a differential signal generator (Cairns, col.4, lines 9-25)).

62. With respect to claim 36, applicant's admitted prior art and Nakatani in view of Cairns further teaches the buffer comprises a differential pair of transistors, the differential pair of transistors being adapted to receive the signal (Fig.3 of Cairns).

63. With respect to claim 37, applicant's admitted prior art and Nakatani in view of Cairns further teaches the buffer comprises a harmonic trap the harmonic trap being

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adapted to attenuate the frequency content disposed in the region around the harmonic frequency (Cairns, Fig.3, col.4, lines 1-36).

64. With respect to claim 38, applicant's admitted prior art and Nakatani in view of Cairns further teaches the harmonic trap is disposed across a differential output of the buffer (Cairns, Fig.3, col.4, lines 1-36).

With respect to claim 39, applicant's admitted prior art and Nakatani in view of Cairns further teaches the buffer is adapted to band stop the frequency content disposed in the region around the harmonic frequency (Fig.1, Fig.2, #7, col.1, lines 5-67, col.2, lines 1-25).

65. With respect to claim 40, applicant's admitted prior art and Nakatani in view of Cairns further teaches the buffer is adapted to notch the frequency content disposed only at approximately the harmonic frequency (Fig.1, Fig.2, #7, col.1, lines 5-67, col.2, lines 1-25).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AMAR DAGLAWI whose telephone number is (571)270-1221. The examiner can normally be reached on Monday- Friday (7:30 AM- 5:00 AM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, NGUYEN DUC can be reached on 571-272-7503. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Amar Daglawi
Examiner
Art Unit 2618

/Duc Nguyen/
Supervisory Patent Examiner, Art Unit 2618